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933,889

## PATENT SPECIFICATION



DRAWINGS ATTACHED

933,889

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## COMPLETE SPECIFICATION

## Improvements in or relating to Floating Containers

We, F.P.T. INDUSTRIES LIMITED, formerly Fireproof Tanks Limited, a British Company, of The Airport, Portsmouth, Hampshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a container in which liquids or free flowing powders may be towed over water.

According to the invention the container comprises a tube of flexible impervious material sealed at both ends, at least one of the seals being along a diameter, having a hollow member directly attached to the diametrical seal, the hollow member serving both as a towing bar and as a means for imparting buoyancy to the container.

The container is preferably made from rubberised corded fabric. It is preferred that the seals at both ends are diametric. They may be either parallel or at right angles to each other. The seals are formed by bringing the two halves of the circumference into contact and clamping them together and/or bonding the opposed surfaces.

The hollow member is preferably cylindrical and may be divided axially by a plate which assists in the distribution of the load. The cylinder is preferably of a length at least equal to the length of the seal and is attached to the container in such a way that its axis is parallel to the seal and perpendicular to the direction of towing. If desired the hollow member can provide a mounting for an outboard motor. Fibre reinforced synthetic resin has been found a suitable material for the hollow member.

A braking system is preferably included to prevent the container running into the towing vessel. This may comprise a flap of material hinged to the container and weighted at its free end. The free end is also attached by a cable to the towing cable. When the towing

cable is under tension, the flap is held flush against the underside of the container. However, as soon as the tension is reduced, the flap drops down to increase the resistance of the container to movement. The flap is prevented from moving further than a position at right angles to the container by a restraining cable between it and the container.

A preferred form of the invention will now be described with reference to the accompanying drawings in which:—

Figure 1 is a sectional view of a container constructed in accordance with the invention;

Figure 2 is a perspective view of the container under tow;

Figures 3 and 4 are perspective views of the braking flap in the operative and inoperative positions, respectively, and

Figure 5 is a perspective view of twin buoyancy tanks adapted to support means of propulsion.

As shown in Figures 1 and 2, the container comprises a tubular body 10 made of rubberized corded fabric. The body 10 is sealed at one end by bonding two halves of the circumference together along a line 11. At the other end the diametrically opposed edges are bonded together and secured to a buoyancy tank constituted by a hollow cylinder 12 which is of a length approximately equal to that of the adjacent bonded edge of the container 10. The cylinder 12 is formed in two halves from fibreglass moulding, each of which has an outwardly directed flange 13, the flanges being secured together by means of bolts 14. A central plate 15 extending across the cylinder 12 serves to distribute the load under towing conditions and is gripped at its edges between the flanges 13. The longitudinal edge of the cylinder 12 which, in the towing position, is the trailing edge, is secured to the bonded edge of the container 10 by means of the bolts 14. A tow rope 16 is secured to the leading edge of the cylinder 12.

Instead of the seals in the body 10 being at

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right angles to each other, as shown in Figures 1 and 2, they can be parallel and, if desired, hollow cylinders may be attached at both ends.

5 A reinforcing skirt may be bonded to the container about one or both seals, and the skirt clamped to the cylinder instead of the seal itself.

10 Referring particularly to Figures 3 and 4, a braking flap 17 consisting of a separate piece of the material of which the container 10 is made, is bonded to the underside of the container 10 and 18. The free edge 19 of the flap is weighted and is attached by a line 20 running through a guide 21 to the tow rope. A 15 retaining line 22 prevents the flap 17 from moving through more than 90°. Thus, when the tow rope is taut, the flap 17 is maintained flush with the underside of the container 10 but, when the tow rope slackens, the flap 17 20 is permitted to drop down and causes resistance to the forward motion of the container 10.

25 In the modification shown in Figure 5, two parallel cylinders 12 and 12<sup>1</sup> are spaced apart by a platform 23 and a transom board 24 is fitted around a well in the platform in which a propulsion unit may be fixed as indicated by the dotted line.

30 By employing flexible containers constructed as described, it is possible to transport bulk quantities of liquids or free flowing powders in an economic, easily-handled stable manner by water with or without independent means of propulsion.

#### WHAT WE CLAIM IS:—

1. A container comprising a tube of flexible impervious material sealed at both ends, at least one of the seals being along a diameter, having a hollow member directly attached to the diametrical seal, the hollow member serving both as a towing bar and as a means for imparting buoyancy to the container.

40 2. A container according to claim 1, wherein the hollow member is in the form of a cylinder having a length approximately equal to that of said diametrical seal.

45 3. A container according to claim 1 or claim 2, wherein the hollow member is made of fibre reinforced synthetic resin.

50 4. A container according to any of claims 1 to 3, provided with braking means.

55 5. A container according to claim 4, wherein said braking means comprises a hinged flap adapted to assume a braking position when a towing force applied to the container is released.

60 6. A container according to any of the preceding claims, wherein the hollow member forms part of the mounting for a propulsion unit.

7. A container substantially as hereinbefore described with reference to and as shown in the drawings.

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Fig. 1

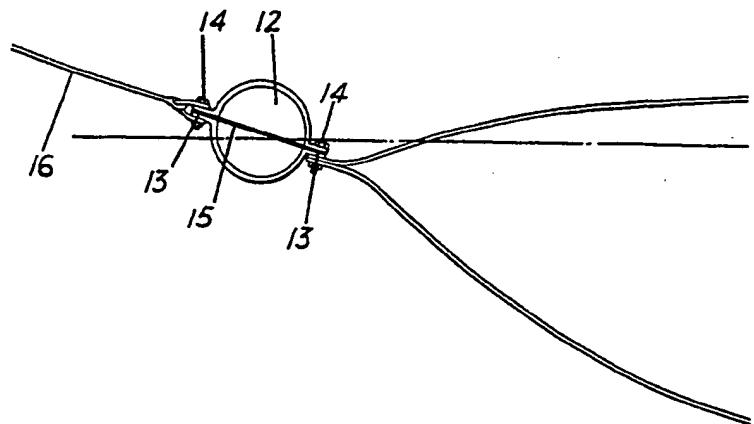


Fig. 2

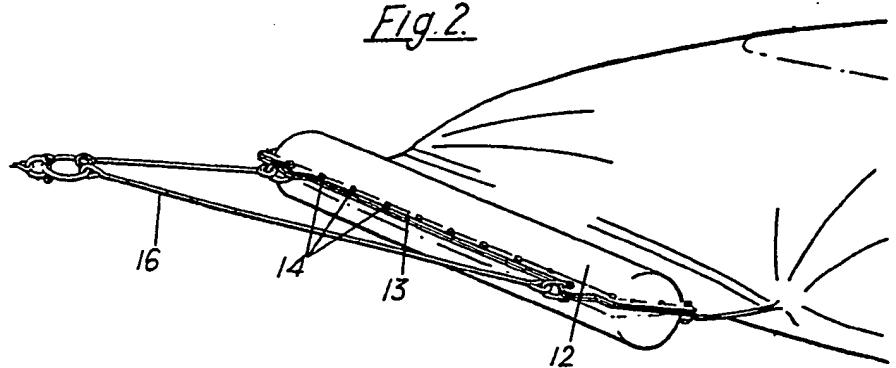
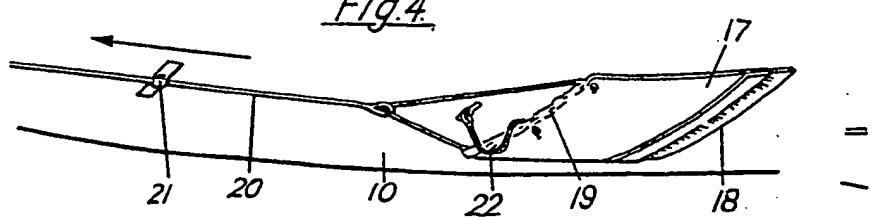


Fig. 4



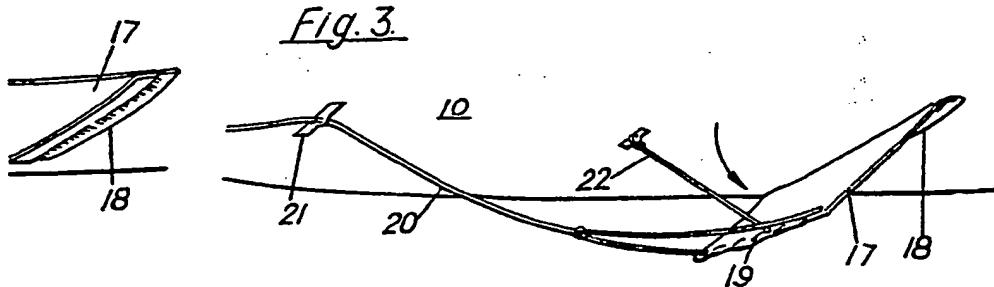
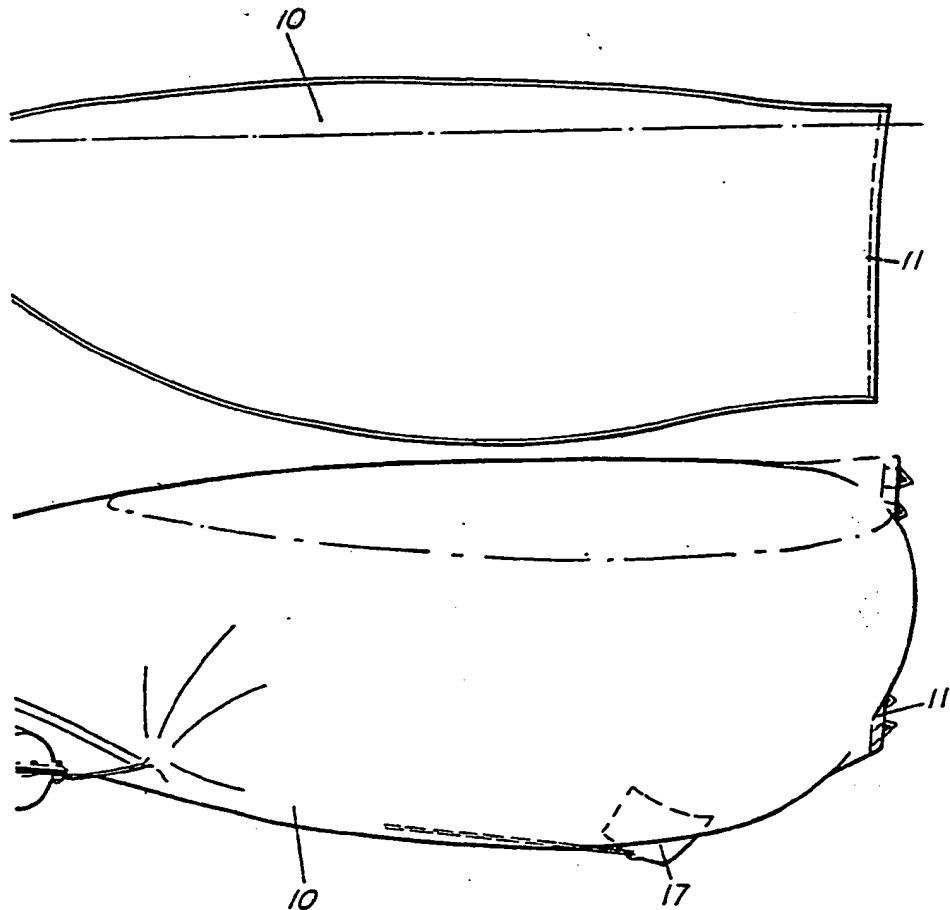
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2 SHEETS

COMPLETE SPECIFICATION

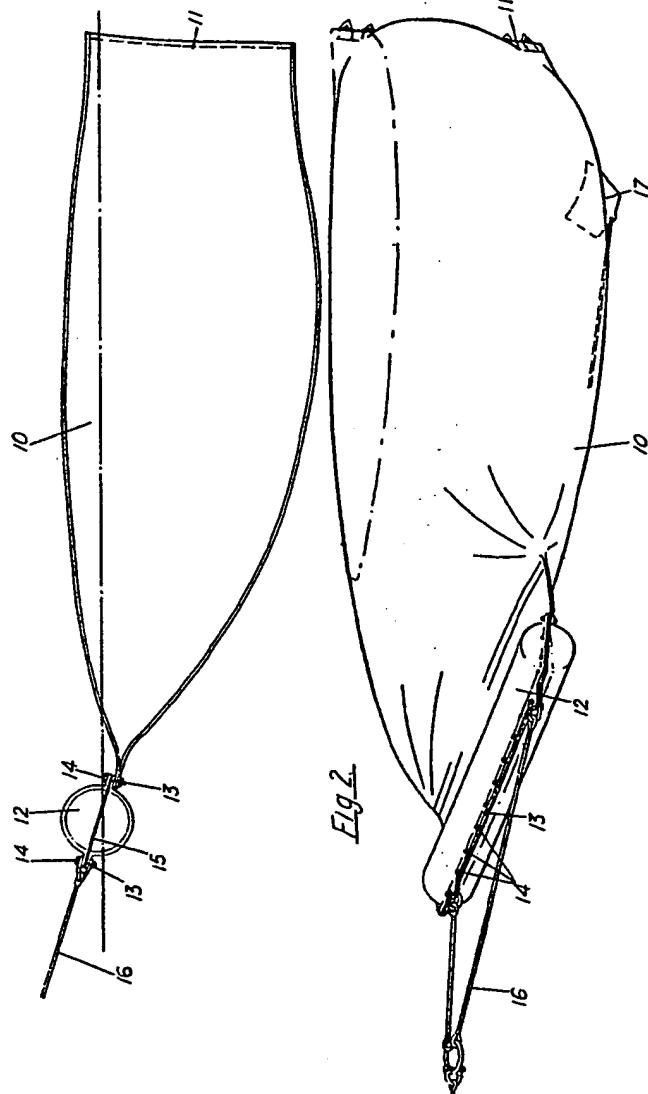
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SHEET 1

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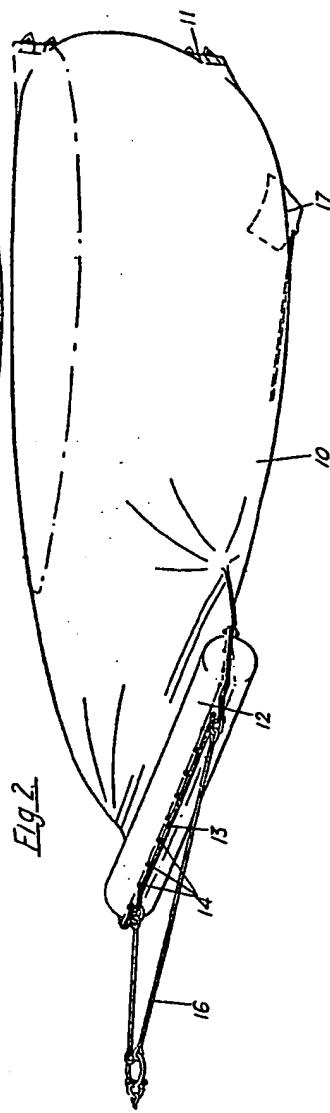


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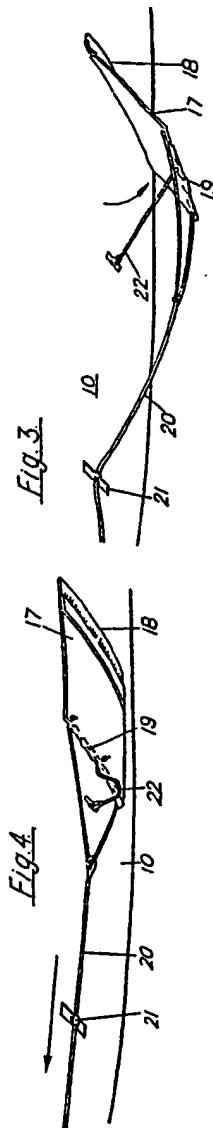
*Fig. 1.*



*Fig. 2.*



*Fig. 4.*



*Fig. 3.*

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SHEET 2

Fig. 5.

